

A FURTHER CONTRIBUTION TO THE SYSTEMATICS OF
THE GENUS *TOONGLASA*
(HEMIPTERA: LYGAEIDAE: BLISSINAE)

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Abstract.—Six new species of *Toonglasa* are described from México and one from Venezuela. A revised key to all known species is included, together with habitat and host plant data. Most species live upon various species of bamboo with several instances of more than one species occurring on the same host plant. Additional distributional data are given for *Toonglasa barrerai*, *forficuloides*, *tumorosis*, *tylosis*, *munda*, *thackstonae* and *umbrata*. A dorsal view is included of *T. elegans* and figures of the genitalia of *T. bifida*.

One of the most striking developments in blissine systematics in recent years has been the discovery of an extensive fauna living on various species of bamboos in México.

In the present paper we describe seven new species, present a revised key to species that expands that of Slater and Brailovsky (1983), discuss host plant relationships and give additional distributional data for several previously described species.

This additional information is made possible largely by the extensive collections of the junior author and his colleagues in recent years.

Toonglasa was established by Distant (1893) for the large flattened species *forficuloides*. Distant had before him a single male collected at Omilteme, Guerrero, México at 5,000 feet elevation. This remained the only known specimen for nearly 100 years until the junior author and colleagues discovered sizeable populations of *forficuloides* and established its host plant as a species of bamboo.

This new material allowed dissection of the genitalia and the study of nymphs and led Slater and Brailovsky (1983) to conclude that *forficuloides* was congeneric with *Extarademus* Slater and Wilcox (1966).

Although genitalia sometimes will separate species in this genus, they have not proven to be useful for separation of most of the closely related species described below; the external differences in all cases have proved to be more useful and important.

REVISED KEY TO SPECIES OF *TOONGLASA*

- 1. Pronotum in large part dull pruinose in texture, never shining over entire dorsal surface 2
- Pronotum either shining over entire dorsal surface or at most with a very narrow pruinose strip along extreme posterior margin 14
- 2. Tylus much broadened at anterior end to form a splayed-out, truncate apex; males

- with pair of sharp spines projecting from ends of connexiva seven *tylosis* (Slater & Wilcox)
- Tylus narrow and of uniform width throughout, never broadly splayed out and truncate at apex; males either with or without acute spines projecting from ends of abdominal connexiva seven 3
 - 3. Second antennal segment relatively elongate, always more than 1.25 times interocular space 4
 - Second antennal segment relatively short, never more than 1.20 times interocular space 9
 - 4. Antennae uniformly black 5
 - Antennal segments one, two and three light yellow 6
 - 5. Head pruinose except for tylus and a small area anterior to each ocellus; scutellum completely pruinose; antenniferous tubercles not hooked; legs bright yellow *yushaniacola* Slater & Brailovsky
 - Head broadly shining on surface of vertex; scutellum with a shining elevated median ridge; antenniferous tubercles strongly hooked; femora black *nigra*, n. sp.
 - 6. Pronotal shining bar very broad, encompassing entire posterior area of pronotum and reaching posterior pronotal margin *tumorosoides*, n. sp.
 - Pronotum with a distinct but narrow pruinose area along posterior margin behind transverse shining bar 7
 - 7. Pronotum chiefly pruinose, shining calli patches extensively interspersed with pruinose dots; males with short acute posteriorly projecting spines from posterior margin of 7th abdominal connexiva; sterna 5-7 with spines present on elevated tumid areas *tumoris* (Slater & Wilcox)
 - Pronotum with extensive shining areas; calli areas smooth and polished, at most with a few scattered silvery hairs present; males lacking spines projecting from 7th abdominal connexiva; if spines present on abdominal sterna these not placed on swollen tumid areas 8
 - 8. Antennae chocolate brown to black; transverse impression across pronotum broadly pruinose throughout; scutellum dark gray, strongly contrasting with adjacent pale corium; males with conspicuous hooked spines on sterna three through seven (brachypters only known) *wilcoxae*, n. sp.
 - First three antennal segments pale yellow; transverse pronotal impression with pruinosity tapering from lateral margin and not present mesally; scutellum pale tan, concolorous with adjacent areas of corium; males lacking hooked abdominal sternal spines *prunimunda*, n. sp.
 - 9. Males with numerous sharp spines present on abdominal sterna five through seven ... 10
 - Males lacking distinct sharp spines on abdominal sterna 11
 - 10. Membrane of front wing with veins anastomosing; body short and stout *reticulata*, n. sp.
 - Membrane of front wing with veins longitudinal, not anastomosing; body elongate and slender *umbrata* (Distant)
 - 11. Labium subequal in length to pronotal length; eyes placed on short broad "shelf" .. 12
 - Pronotal length greater than labial length; eyes sessile 13
 - 12. Fore femur with a stout bifid spine; membrane of fore wing with a large dark discal central macula, but basal and marginal areas of membrane pale; males lacking a series of ridges and grooves along posterior margin of sternum eight *bifida*, n. sp.
 - Fore femur with a single slender spine; membrane of fore wing dark gray-black throughout; males with a series of ridges and grooves along posterior margin of sternum eight *barrerai* Slater & Brailovsky
 - 13. Pronotum with silvery hairs covering large shining calli area; clavus, corium and membrane uniformly pale tan *thackstonae* Slater & Brailovsky

- Pronotal calli glabrous and shining; clavus dark gray contrasting strongly with pale yellowish-white adjacent corial area; membrane with a large black median macula *pulchella*, n. sp.
- 14. Membrane with a large, distinct median dark discal spot (Cuba) *discalis* (Barber)
- Membrane often suffused, but lacking a distinct discal spot 15
- 15. Labium extremely short, extending only short distance onto prosternum, remote from fore coxae, with third labial segment not attaining base of head *humerus* (Slater & Wilcox)
- Labium more elongate, extending posteriorly almost to fore coxae, third labial segment considerably exceeding base of head 16
- 16. Extreme posterior portion of pronotum with a very narrow marginal pruinose band, contrasting with shining area of rest of pronotum; males with hind femora strongly incrassate and bearing a series of short spines near middle of ventral surface; metathoracic scent gland auricle relatively broad and ellipsoidal ... *munda* (Slater & Wilcox)
- Pronotum completely shining even along extreme posterior margin; males with hind femora only moderately incrassate, unarmed below; metathoracic scent gland auricle elongate and slender 17
- 17. An elongate protrusion extending posteriorly from abdominal connexivum seven (fig. 1) 18
- No elongate lateral projection protruding from abdominal connexivum seven 19
- 18. Body very broad and flat, width of pronotum more than $1\frac{1}{4}$ times median pronotal length *forficuloides* Distant
- Body slender, not strongly broadened, pronotal width much less than $1\frac{1}{4}$ times pronotal length *elegans*, n. sp.
- 19. Males with elongate median spine projecting from posterior margin of 8th sternum *collaris* (Signoret)
- Males lacking a projecting spine from posterior margin of 8th sternum, the latter with serrate edge and median bulge, but lacking a distinct spine .. *collaroides* (Slater & Wilcox)

Toonglasia elegans, new species

Fig. 1

Description. Relatively robust, elongate, parallel sided. Head, anterior pronotal lobe, mesal portion of posterior lobe before transverse humeral bar and scutellum black. Posterior pronotal lobe laterally and posteriorly bright yellowish tan. Hemelytra chiefly pale yellow. Clavus, inner $\frac{1}{2}$ to $\frac{1}{3}$ of corium and entire membrane suffused with gray brown coloration. Abdomen bright red brown with contrasting pale yellow connexivum. All legs and first antennal segment bright yellow. Second and third antennal segments reddish brown mesally, becoming paler at proximal and distal ends. Fourth antennal segment dark chocolate brown. Pronotum completely shining on dorsal surface. Head chiefly shining above, but with pruinosity present on juga, at base of antenniferous tubercles and area around ocelli. Scutellum, propleuron below shining lateral bar, mesopleuron and anterior lobe of metapleuron gray pruinose. Mesosternum shining and polished. Clothed on dorsal surface with rather elongate semi-upright hairs.

Head non-declivent, tylus attaining middle of first antennal segment. Eyes moderately large, sessile. Vertex convex. Length head 0.76, width 0.81, interocular space 0.48. Lateral pronotal margins narrowing convexly from humeral angles to anterior margin; transverse impression shallow but complete; posterior margin evenly concave. Length pronotum 1.18, width 1.40. Scutellum with a very weak median ele-

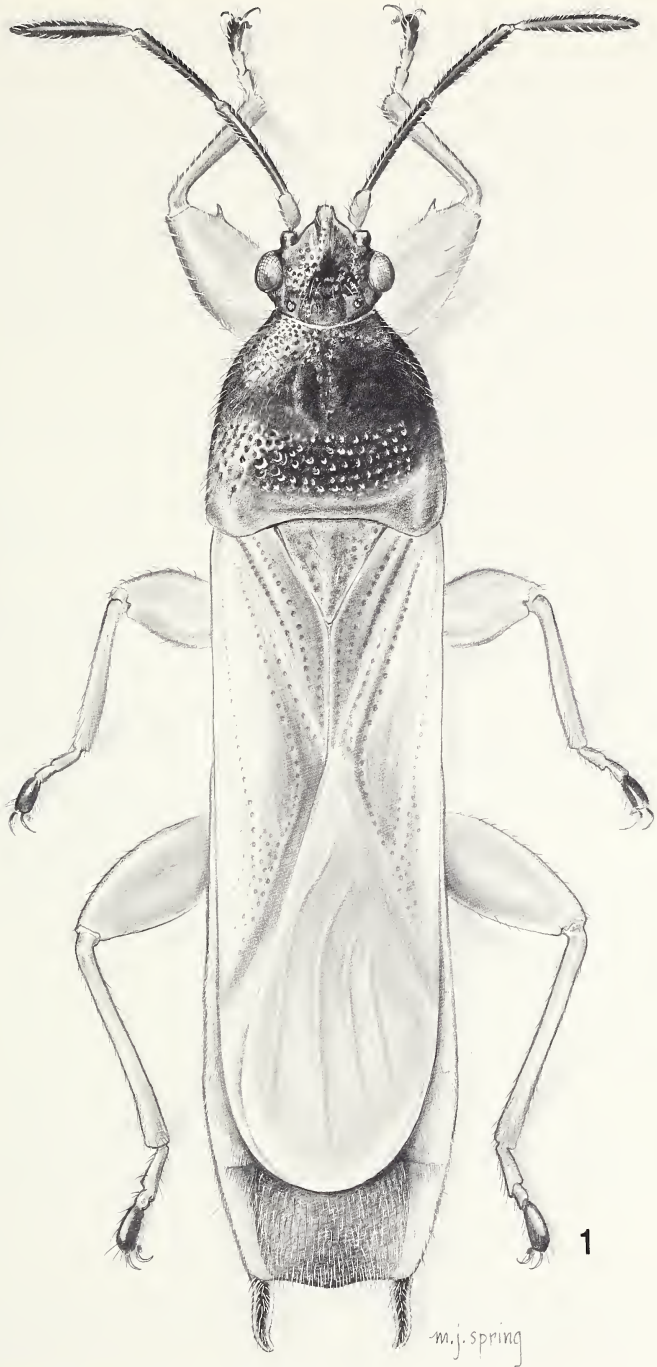


Fig. 1. *Toonglasa elegans*, n. sp., dorsal view.

vation. Length scutellum 0.62, width 0.62. Lateral corial margins parallel sided. Membrane extending midway over seventh abdominal tergum. Length claval commissure 0.68. Midline distance apex clavus-apex corium 1.52. Midline distance apex corium-apex abdomen 0.86. Metathoracic scent gland auricle curving anteriorly, short, rounded, posterior $\frac{1}{2}$ shining, anterior $\frac{1}{2}$ pruinose. Both fore and hind femora strongly incrassate; fore femur with a large ventral spine on distal $\frac{1}{3}$; hind femora mutic. Connexiva of seventh abdominal segment produced posteriorly as a pair of elongate spines that greatly exceed posterior end of genital capsule. Labium reaching posterior margin of prosternum, exceeding fore coxae. Length labial segments I 0.42, II 0.34, III 0.36, IV 0.46. Antennae terete, fourth segment narrowly fusiform. Length antennal segments I 0.22, II 0.70, III 0.66, IV 0.82. Total body length 6.24.

Holotype. Male. MEXICO: Veracruz: Sontecomapan. 22.XII.1983 (H. Brailovsky). In UNAM.

Paratypes. 2 males, 4 females same data as holotype. 3 males, 2 females same locality 20–21.III.1985 (H. Brailovsky, E. Barrera). In UNAM and J. A. Slater collections.

Discussion. The type series does not differ appreciably from the holotype described above other than that most specimens have a somewhat more intensely darkened coloration mesally on the hemelytra that gives the insect the appearance of dark wings with pale yellow lateral stripes.

Although *elegans* resembles the much larger and broader *forficuloides* in having elongate connexival projections (Fig. 1) it is readily recognizable by its much smaller less broadened and flattened body, a much shorter labium and a pruinose rather than shining scutellum.

The type series including the nymphs described below were taken on *Bambusa longifolia* (Forun.) McClure.

Several nymphs that were taken with the type series plus a long series taken at the same locality by the junior author and E. Barrera on 21.III.1985 are remarkably colored. The thorax has a large black area before the wing pads and another covering TM7, TM8 and TM9 (see Slater, 1979, for code to nymphal sclerites). These dark areas together with the almost black fourth antennal segments contrast strikingly with the pale yellow color of the remainder of the body. In live specimens the abdomen may be lightly suffused with pale red. Other features of the fifth instar nymphs are as follows: Head and pronotum light tan, wing pads, abdomen and appendages almost white. TL7 reduced to a narrow stripe, but black and strongly sclerotized. SGA5 and SGA6 pale yellow, large and semi-circular, much larger than SGP5 and SGP6. TM sclerites present. Other dorsal sclerites present but small and pale yellow. SM sclerites 7, 8 and 9 large, black or very dark brown. SL7 and SL8 fused, black.

The dark band across the mesonotum and the darkened distal end of the abdomen in contrast to the otherwise pale coloration make these nymphs very distinctive.

Toonglasa prunimunda, new species

Description. Head and anterior pronotal lobe black. Thoracic pleura and sterna, abdomen, fourth antennal segment and posterior lobe of pronotum bright reddish brown. Scutellum and hemelytra nearly uniformly pale straw-yellow. Legs and first

three antennal segments uniformly bright yellow. Membrane nearly uniformly smoky gray. Dorsal surfaces of head and pronotum largely shining and non-pruinose. Pruinosity present as follows: head dorso-laterally behind eyes, posterior half of ventral head surface, a complete collar-like strip across anterior area of pronotum, a narrow strip along extreme posterior margin behind shining humeral bar, entire propleuron and prosternum except for lateral shining bar, pruinosity present above this bar and covering lateral margins and extending conspicuously onto lateral portions of dorsal pronotal surface, entire scutellum, mesopleuron, metapleuron and metasternum. Mesosternum polished and shining. Dorsal surface with only a few inconspicuous short scattered hairs present.

Head non-declivent, tylus almost attaining distal end of first antennal segment. Eyes large, covering most of lateral surface of head, not produced on a shelf. Vertex moderately convex. Length head 0.58, width 0.64, interocular space 0.36. Pronotum with lateral margins straight from humeral angles to middle of calli, then narrowing convexly to anterolateral angles. Posterior margin very shallowly concave with coarse anastomosing punctures present on posterior pronotal lobe anterior to shining transverse bar. Length pronotum 0.94, width 0.58. Scutellum with an inconspicuous median elevation. Length scutellum 0.48, width 0.46. Length claval commissure 0.48. Midline distance apex clavus-apex corium 1.02. Midline distance apex corium-apex abdomen 1.30. Membrane reaching anterior margin of 7th abdominal tergum. Metathoracic scent gland auricle elongately elliptical, curving anteriorly. Fore femora incrassate with a single large spine ventrally on distal $\frac{1}{3}$. Hind femora more strongly incrassate than fore femora, swollen and with an inconspicuous spinule near middle of ventral surface. Labium extending between fore coxae, remote from posterior margin of prosternum. Length labial segments I 0.26, II 0.20, III 0.22, IV 0.22. Antennae conventionally terete, fourth segment narrowly fusiform. Length antennal segments I 0.14, II 0.44, III 0.42, IV 0.58. Total body length 4.76.

Holotype. Male. MEXICO: *Oaxaca*: Chacalapa 6.II.1988 (E. Barrera, A. Cadena, E. Ramirez). In UNAM.

Paratypes. MEXICO: *Oaxaca*: 3 males, 4 females same data as holotype. 1 male, 2 females, km 3 Carr. Pochutla-Oaxaca 3.VI.1985 (E. Barrera). 2 females Chacalapa 2.VI.1987 (F. Arias). 7 males same data as above (H. Cervantes). 1 male, 2 females same data as above (E. Barrera). 6 males, 4 females Pochutla-Piedra Lumbre 2.VI.1987 (E. Barrera). 2 males, 2 females same data as above (L. Cervantes). 1 male, 2 females same data as above (F. Arias). 1 female Amozoc 4.III.1986 (E. Barrera). 1 female km 219 Call. 17s. Pto. Angel 19.VI.1984 (H. Velazco). 2 females km 17 Carr-Sayula-Cd. Aleman 28.V.1984 (A. Ibarra).

Discussion. This species is undoubtedly a member of the "*munda* complex" by virtue of the narrow pruinose strip across the posterior margin of the pronotum and the greatly enlarged and spined hind femora of the males. It is readily separable from *munda* by having the pruinosity extending well above the shining propleural bar and onto the dorsal surface of the pronotum. One female paratype has the reddish coloration of the holotype, another female has the anterior $\frac{2}{3}$ of the pronotum and all of the head except the distal end of the tylus black. Slater and Brailovsky (1983) noted the same color dimorphism in *T. tumorosis* and did not believe that it was a teneral condition.

T. prunimunda was taken on the bamboo *Chusquea longifolia* Sus. together with *munda*, another example of more than one species of *Toonglasa* occurring on the same host plant.

***Toonglasa tumorosoides*, new species**

Description. Very similar in general form, size and shape to *tumorosis*. General coloration dull, gray-black; becoming pale yellow laterally on corium posterior to distal end of claval commissure, base of membrane, entire abdominal connexivum, antennal segments one, two and three and legs. Body chiefly dull gray pruinose with pronotal calli outlined by a series of shining black dots forming a triangle. Entire posterior third of pronotum including extreme posterior margin bright shining yellow brown. Scutellum completely pruinose. Fourth antennal segment black. Membrane with exception of pale base completely smoky gray brown without pale area distally. Abdomen shining black. Clothed with a mixture of short but upright silvery and black hairs intermixed with decumbent silvery hairs.

Head non-declivent, eyes set well away from anterolateral angles of pronotum. Tylus extending to middle of first antennal segment. Vertex convex. Length head 0.54, width 0.70, interocular space 0.34. Pronotum conventionally shaped, transverse impression complete but shallow. Length pronotum 0.96, width 1.04. Scutellum lacking a median carina. Length scutellum 0.50, width 0.48. Length claval commissure 0.54. Corium with lateral margins completely straight. Membrane reaching onto base of seventh abdominal tergum. Midline distance apex clavus-apex corium 1.14. Midline distance apex corium-apex abdomen 1.44. Abdomen with a faint obsolete median keel on eighth abdominal sternum; seventh abdominal connexiva produced into short but distinct backwardly projecting spines. Mesal area of sterna five, six and seven swollen with spinose knobs as in *umbrata* and *tumorosis*. Metathoracic scent gland auricle elongately rounded, angled slightly anterolaterad. Fore femora moderately incrassate bearing a single ventral spine on distal third. Labium short, at most attaining anterior margin of fore coxae, second segment remote from base of head. Length labial segments: I 0.20, II 0.20, III 0.20, IV 0.24. Antennae slender, terete, fourth segment very narrowly fusiform. Length antennal segments: I 0.46, II 0.58, III 0.54, IV 0.64. Total body length 5.40.

Holotype. Male. MEXICO: *Chiapas*: Ocosingo-Chajul Reserva Montes Azules 10-16.VII.1987 (F. Arias, R. Barba, L. Cervantes). In UNAM.

Paratypes. *Chiapas*: 6 males, 9 females same data as holotype. 1 male same data as above (Arias); 7 males, 10 females Boca Lacantum Rio Usumacinta 25.V.1984 (M. Garcia); 5 males, 4 females km 27 Carr. Morelos-Malpaso 5.III.1988 (R. Barba, E. Barrera, A. Cadena). *Veracruz*: 2 males, 2 females (Minatitlan-Coatzacoalcos 20.VII.1987 (R. Barba & F. Arias). In UNAM and J. A. Slater collections.

Discussion. This species is very closely related to *tumorosis* differing primarily by the uniformly shining posterior half of the posterior pronotal lobe. In *tumorosis* the shining bar across the posterior pronotal lobe is relatively narrow leaving a pruinose strip across the posterior portion of the pronotum. There is relatively little variation in the type series; some specimens have the clavus and corium less darkened than in the holotype so that there is an appreciable amount of dull yellowish brown color present. In some males the median area of sternum seven lacks an elevated carina.

The legs are uniformly yellow in the entire series. One female from Boca Lacantum shows oligomery of the right antenna in which the first and second segments are normal but the third segment is fusiform and has a pale yellow basal third and a blackened distal two-thirds.

The specimens from Boca Lacantum were taken on *Bambusa longifolia* (Fourn.) McClure.

Toonglasa wilcoxae, new species

Description. Very elongate, parallel sided. Head, pronotum, scutellum, antennal segments three and four black. Femora, abdomen, first and second antennal segments reddish brown to testaceous. Shining bar across humeral area of posterior pronotal lobe and area posterior to it light reddish brown. Hemelytra in large part sordid yellow becoming darker along apical corial margin; membrane heavily infuscated with grayish. Head pruinose except for small area anterior to ocelli. Pronotum with dorsal pruinosity present, but with large shining glabrous nearly contiguous calli patches; transverse shining bar across humeri broad and complete but with a distinct pruinose area present along posterior margin of pronotum. Scutellum completely pruinose. Dorsal surface with a few short upright hairs. Thickly clothed on head and pronotum with decumbent silvery hairs, these especially prominent on pronotum laterad of shining calli area and across transverse impression.

Head nondeclivent, tylus reaching middle of first antennal segment. Eyes relatively small, set well away from anterolateral pronotal angles. Vertex moderately convex. Length head 0.74, width 0.88, interocular space 0.56. Pronotum conventionally straight from humeral angles to area of calli than conspicuously narrowing to anterior margin. Transverse impression broad and shallow. Posterior margin shallowly concave. Anterior lobe somewhat swollen, conspicuously elevated above posterior lobe. Length pronotum 1.30, width 1.50. Scutellum lacking a conspicuous median elevation. Length scutellum 0.54, width 0.62. Hemelytra brachypterous with clavus and corium distinct, membrane present, subacute, one membrane only partially covering inner portion of other, extending posteriorly onto anterior portion of abdominal tergum five leaving remainder of abdomen exposed. Length claval commissure 0.46. Midline distance apex clavus-apex corium 0.96. Midline distance apex corium-apex membrane 0.40. Midline distance apex corium-apex abdomen 3.00. Abdominal sterna three through seven each with numerous sharp conspicuous hooked spines mesally but these spines not placed upon elevated tumid projections or rounded elevations. Eighth abdominal sternum lacking a median keel. Seventh abdominal connexiva not produced posteriorly into acute projecting points. Metathoracic scent gland auricle slightly curving anteriorly, elongately elliptical, subtruncate distally. All femora moderately incrassate, fore femora with a single sharp acute spine ventrally on distal third. Labium extending between fore coxae, second segment reaching or slightly exceeding base of head. Length labial segments I 0.38, II 0.38, III 0.38, IV 0.34 (approx.). Antennae conventionally terete, fourth segment very narrowly fusiform. Length antennal segments I 0.24, II 0.80, III 0.64, IV 0.80. Total body length 7.00.

Holotype. Male. MEXICO: *Oaxaca*: Portillo del Rayo. 4.VI.1987 (F. Arias, E. Barrera, L. Cervantes). In UNAM.

Paratypes. MEXICO: *Oaxaca*: 2 females Portillo del Rayo 9.XI.1987 (E. Barrera). In UNAM and J. A. Slater collections.

Discussion. All specimens were collected from an unidentified species of bamboo. The female paratypes do not differ appreciably from the holotype other than lacking the spines on the abdominal venter and having the clavus and corium more infuscated to give a dark brown almost fumose appearance which accentuates the elevated shining radial vein. This species resembles *pusilla* in appearance particularly of the head, pronotum and scutellum, especially the pronotum with its large glabrous calli patches and general pruinosity pattern. It differs from *pusilla* by its much larger size and by the presence of numerous hooked spines on the venter of the abdomen as well as in the general coloration.

This is one of the few species of *Toonglasa* which is known as yet only in the brachypterous condition.

Toonglasa wilcoxae will key to couplet four in Slater and Brailovsky (1983), a couplet which contains *yushaniacola* and *tumoris*. It differs from *yushaniacola* in lacking the raised median keel on sternum eight (stated as sternum seven erroneously in Slater and Brailovsky 1983), but agrees with this species in possessing a series of spines on the venter of the abdomen. *Yushaniacola* however has the calli patches conspicuously invaded with pruinosity so that the triangular shining areas are made up of a series of interrupted spots and blotches. The transverse shining bar is also much narrower in *yushaniacola* and the legs are bright yellow. *Tumoris* is readily distinguishable by the small size, by the light yellow first, second and third antennal segments, and particularly by the sharply produced acute posteriorly directed spines projecting from the seventh abdominal connexiva. *Tumoris* also has the spines on sterna five through seven placed on tumid elevations.

It is a pleasure to dedicate this unusual new species in memory of the late Mrs. Darlene Wilcox in recognition of her many contributions to the systematics of the Blissinae and especially to those of the genus *Toonglasa*.

***Toonglasa reticulata*, new species**

Description. Body relatively short and robust. Head, anterior pronotal lobe, scutellum and fourth antennal segment black. Femora dark chocolate brown becoming light brown on distal ends. Posterior pronotal lobe, clavus and corium light tan. Membrane paler tan with veins dark chocolate brown. Pruinosity absent dorsally on head, present on pronotum over most of surface but leaving large shining calli patches and a broad transverse humeral band shining non-pruinose. Scutellum pruinose with a shining apex. Clothed above on head and pronotum with thickly placed elongate silvery decumbent hairs. These hairs present also on shining pronotal calli area. A definite strip of pruinosity along posterior margin of pronotum.

Head nondeclivent, tylus almost attaining distal end of first antennal segment. Eyes protrudent, shelf-like projections set well away from antero-lateral pronotal angles. Length head 0.48, width 0.66, interocular space 0.38. Pronotum with very shallow transverse impression, posterior margin shallowly concave, lateral margins straight to level of calli then moderately curving inward to anterior margin of pronotum. Length pronotum 0.82, width 0.98. Scutellum lacking a prominent median carina. Length scutellum 0.36, width 0.42. Hemelytra with lateral corial margins straight or

very slightly convex on distal third. Length claval commissure 0.32. Midline distance apex clavus-apex corium 0.70. Midline distance apex corium-apex abdomen 1.54. Membrane extending over middle of seventh abdominal tergum. Metathoracic scent auricle narrowly elliptical angled moderately anterolaterad. All femora incrassate, fore femora more strongly so. Fore femur armed below with a single conspicuous nipple-like spine ventrally on distal third. Abdominal sterna three through seven with a series of short hook-like spines present mesally, these relatively inconspicuous and not set upon tumid elevations. Seventh connexivum not produced into a posteriorly directed spine. Eighth abdominal sternum lacking either a series of grooves and ridges or a median carina. Labium short reaching anterior coxae, second segment remote from base of head. Length labial segments I 0.18, II 0.16, III 0.14, IV 0.24. Antennae short, stout and slightly enlarged at distal ends. Fourth segment prominently fusiform. Length antennal segments I 0.14, II 0.40, III 0.30, IV 0.50. Total body length 4.10.

Holotype. Male. MEXICO: Guerrero: km 115 Coyuca de Catalan-Zihuatanejo 16.IV.1988 (L. Cervantes, A. Cadena, M. Garcia). In UNAM.

Paratypes. 3 males, 3 females same data as holotype. In UNAM and J. A. Slater collections.

Discussion. There is relatively little variation in the type series, some specimens running somewhat darker than the holotype described above so that the posterior pronotal lobe, clavus and corium are a sordid brown. The shining apex to the scutellum is present in all specimens, in some cases occupying almost the entire distal half of the scutellum but usually confined to a small area near the apex. All specimens have distinctive reticulate or anastomosing veins present.

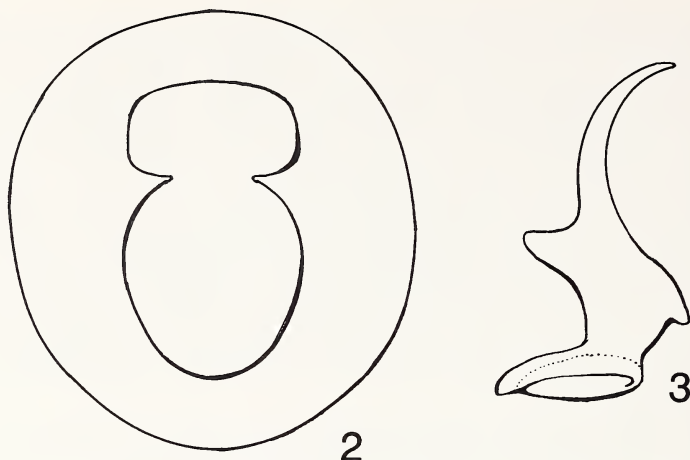
This species will key to *umbrata* in Slater and Brailovsky (1983). It however is not closely related to this species. In addition to the anastomosing membrane veins it is a much shorter stouter species clothed with elongate silvery hairs. Although not actually closely related to most other species in the genus it probably shares some synapomorphies with *thackstonae*.

This is the shortest, stoutest member of the genus known thus far.

Toonglasa bifida, new species

Figs. 2, 3

Description. Head, pronotum anterior to transverse shining bar, scutellum and a large elongate central distal spot on membrane black. Antennae chiefly black, becoming reddish brown at distal ends of first, second and third segments. Transverse humeral shining bar and area posterior to it on pronotum, all femora and fore tibiae dark red brown. Hemelytra with clavus reddish brown; corium dull yellow, slightly infuscated distally. Abdomen chiefly black with connexivum contrastingly red brown. Hind tibiae dull yellow. Dorsal surface covered with short but distinct hairs; hairs on antennae elongate, projecting strongly laterad from antennal surface and longer than antennal diameter. Femoral hairs also extremely elongate. Pruinosity present on head laterad of and behind ocelli, extending forward to base of antenniferous tubercles. Pronotal pruinosity covering greater portion of dorsal surface but with large shining non-pruinose triangular calli patches almost confluent mesally and with



Figs. 2-3. *Toonglasa bifida*, n. sp. 2. Genital capsule, dorsal view. 3. Paramere, lateral view.

a broad complete shining subbasal humeral bar, with a distinct strip of pruinosity along posterior margin. Scutellum and hemelytra completely pruinose.

Head non-declivent, tylus almost attaining distal end of first antennal segment. Eyes slightly stalked, set well away from anterolateral pronotal angles. Length head 0.58, width 0.70, interocular space 0.56. Lateral margins of pronotum nearly straight to level of calli then strongly narrowing to anterior margin; transverse impression broad and shallow. Anterior pronotal lobe more convex than posterior. Length pronotum 1.00, width 1.14. Scutellum with a low inconspicuous median elevation: surface coarsely punctate. Length scutellum 0.42, width 0.66. Hemelytra with lateral corial margins straight, membrane extending onto anterior edge of seventh abdominal tergum. Length claval commissure 0.36. Midline distance apex clavus-apex corium 1.00. Midline distance apex corium-apex abdomen 2.14. All femora clavate, fore femora most strongly so with a very large thick bifid acute spine distally on ventral third. Thoracic scent gland auricle elliptically lobate, not strongly angled anteriorly. Abdomen lacking a carina on eighth sternum, seventh connexiva not produced posteriorly, fifth, sixth and seventh sterna lacking raised elliptical spinose tumid areas. Labium short, reaching between but not beyond fore coxae, second segment remote from base of head. Length labial segments I 0.20, II 0.20, III 0.16, IV 0.16 (approx.). Antennae relatively short, terete, fourth segment conspicuously fusiform. Length antennal segments I 0.16, II 0.44, III 0.40, IV 0.56. Total body length 5.48.

Holotype. Male. VENEZUELA: La Mucuy 200 mts. (Edo. Merida). C. Bordon 13.VIII.1978. In UNAM.

Paratypes. 1 male, 1 female same data as holotype. In UNAM and J. A. Slater collections.

Discussion. This species is somewhat anomalous within the genus *Toonglasa* in that the body is relatively much more robust and the bifid spine on the forefemur is reminiscent of species of *Patritius* Distant. Nevertheless in all other basic features it appears to be most closely related to species of *Toonglasa*. The paramere has a

strongly produced inner projection (Fig. 2) and the sperm reservoir is small with a narrow curving pair of wings similar to the condition found in a number of other species of *Toonglasa*. *T. bifida* will key to *barrerae* in Slater and Brailovsky (1983) but is readily distinguishable by a number of characteristics especially the bifid forefemoral spine and black distal area on the membrane. The pronotal pruinosity in *bifida* extends well onto the dorsal surface of the anterior pronotal lobe whereas in *barrerae* this is not the case. The body is also relatively more robust.

***Toonglasa pulchella*, new species**

Description. Elongate, slender, parallel sided. Head, pronotum, clavus, a large discal macula on wing membrane, abdomen and fore femora black. Antennae dark, for the most part dull brown to chocolate brown with fourth segment almost black. Tylus and first antennal segment dull yellowish. Corium pale yellow to almost white, strongly contrasting with clavus and dark distal third of corium, membrane also white with exception of a very large central dark macula which reaches apical corial margin along center of margin. Abdominal connexiva reddish brown, tibiae and tarsi sordid yellow. Head pruinose, with a small shining area anterior to ocelli. Pronotum pruinose except for very large nearly confluent polished shining trianguloid calli patches and an extremely broad complete subbasal transverse bar. Extreme posterior margin of pronotum narrowly pruinose. Scutellum completely pruinose. Clothed with decumbent silvery hairs, these very thick on pronotum and head.

Head non-declivent, tylus almost attaining distal end of first antennal segment. Eyes not strongly protrudent but set well away from anterolateral pronotal angles. Length head 0.70, width 0.68, interocular space 0.42. Pronotum with a broad shallow complete transverse impression, posterior margin very shallowly concave. Length pronotum 0.96, width 1.10. Scutellum with at most a very low inconspicuous median elevation. Length scutellum 0.40, width 0.50. Hemelytra with lateral corial margins straight. Membrane extending to posterior third of sixth abdominal tergum. Length claval commissure 0.38. Midline distance apex clavus-apex corium 0.90. Midline distance apex corium-apex abdomen 2.02. Metathoracic scent auricle elongately elliptical, conspicuously curved anteriorly. All femora incrassate, fore femora most strongly so, with a single sharp spine ventrally on distal third. Abdominal sterna five, six and seven lacking spinose tumid areas. Seventh connexivum not produced into acute posteriorly projecting spines. Eighth abdominal sternum lacking a series of grooves and ridges across posterior margin. Labium short, at most reaching anterior margin of fore coxae, second segment remote from base of head. Length labial segments I 0.24, II 0.18, III 0.20, IV 0.24. Antennae terete. Length antennal segments I 0.18, II 0.48, III 0.46, IV 0.62. Total body length 5.20.

Holotype. Male. MEXICO: Colima: Colima 16.VII.1985 (Harry Brailovsky). In UNAM.

Paratypes. MEXICO: Michoacan: 1 female, 14 km al Sur de Uruapan, 29.VII.1988 (M. Garcia); 1 female, km 93 Carr. Uruapan-Playa Azul, 1,300 mts., 27.V.1988 (A. Cadena, L. Cervantes). In UNAM and J. A. Slater collections.

Discussion. The two female paratypes do not differ appreciably from the holotype in most respects but have the first antennal segment and the legs light yellow. This is a handsome, vividly marked species. It runs to *thackstonae* in Slater and Brailovsky

(1983) but does not appear to be closely related. In contrast to *thackstonae* where the pubescence, while similarly silvery, covers a large central calli area this species has the calli completely shining, polished and glabrous. Also the subbasal transverse shining bar is much broader in *pulchella* occupying most of the posterior pronotal lobe. It also differs from *thackstonae* in having a completely dark gray to black clavus which contrasts strikingly with the almost white adjacent corium. The clavus, in fact, is concolorous with the dark scutellum. In *thackstonae* the corium is uniformly pale to the apex whereas in *pulchella* the distal third of the corium is distinctly darkened and while *thackstonae* may have a brownish stripe or band running through the membrane it does not have a large black macula on the white membrane.

In some respects *pulchella* resembles *barrerae* but the latter has ridges and grooves on the eighth abdominal sternum which are lacking in *pulchella* and the scent gland auricle in the present species is more strongly curved anteriorly than in either of the other two discussed above.

This species is perhaps related to *discalis* from Cuba because of the dark membrane patch but the pruinosity pattern is completely different in these two species.

In general habitus *pulchella* resembles *wilcoxae*, particularly in the general appearance of the pronotum with its large shining glabrous calli and broad transverse shining humeral bar. Both species have dark antennae and males at least have dark legs and infuscated membranes of the hemelytra. However, *pulchella* lacks the ventral abdominal spines of *wilcoxae*, has a dark rather than pale clavus and a much more strongly anteriorly curved metathoracic scent gland auricle. The head and thoracic pruinosises however are very similar in the two species.

***Toonglasa nigra*, new species**

Body elongate, head and thorax slender, abdomen broadly elliptically expanded. Almost uniformly black throughout including appendages. Wing membrane pale yellow with a dark median spot that attains apical corial margin. Abdominal connexiva becoming dark red brown laterally. Tibiae light reddish brown with tarsi yellowish, strongly contrasting with dark chocolate brown to black femora. Dorsal surface bearing a few scattered moderately elongate upright hairs interspersed with a few decumbent deciduous hairs but body to a considerable extent appearing subglabrous. Head shining mesally and completely on tylus, but laterad of eyes including juga, pruinose to posterior one-half of eye. Pronotum largely pruinose with large shining broadly contiguous non-pruinose calli patches and a complete broad shining transverse humeral band. Posterior margin of pronotum very narrowly pruinose. Scutellum pruinose but with a conspicuous elevated shining median carina.

Head non-declivent, tylus reaching middle of first antennal segment, eyes relatively small, sessile, set moderately far from anterior margin of pronotum. Vertex convex. Length head 0.80, width 1.00, interocular space 0.68. Antenniferous tubercles slightly hooked inward. Pronotum with lateral margins sinuate, almost as broad across calli as across humeral angles. Transverse impression obsolete. Length pronotum 1.18, width 1.40. Scutellum with a conspicuous median carina. Length scutellum 0.60, width 0.70. Hemelytra micropterous with clavus and corium fused but suture line still evident. Hemelytral pads acuminate. Corium reaching middle of abdominal tergum two, membrane occurring as a lobate pad along apical margin of corium,

apex of membrane reaching almost to posterior end of second abdominal tergum. Length corium 1.06. Wing pads widely separated from one another throughout length. Length mesothoracic wing pads 1.26. Abdomen with ovipositor separating sixth abdominal sternum and extending partially into fifth sternum to cause posterior margin of that segment to be strongly concave. Metathoracic scent gland auricle elongate almost transversely straight but slightly angled posteriorly. Femora relatively slender. Fore and middle femora more incrassate than hind femora. Fore femora with a single sharp acute spine distally on ventral third. Labium extending well between fore coxae, second segment reaching base of head. Length labial segments I 0.40, II 0.40, III 0.34, IV 0.52. Antennae remarkably robust for genus, terete, clothed with upstanding hairs as long as diameter of segment. Length antennal segments I 0.30, II 0.70, III 0.50, IV 0.82. Total body length 7.52.

Holotype. Female VENEZUELA: *Guarico*: La Palmita, 28.XII.1979 (C. Bordon). In UNAM.

Discussion. Although unfortunately known only from a single female specimen which precludes understanding its systematic position within the genus this specimen is so distinct that we feel it desirable to describe it to call attention to the presence of this species in Venezuela. *T. nigra* will key in Slater and Brailovsky (1983) to *yushaniacola* but is not actually at all closely related to that species. In addition to a striking difference in color, *yushaniacola* is a predominately reddish brown species, with the head pruinose except the tylus anteriorly and a small area in front of the ocelli. It also has quadrate shining areas of the pronotal calli well separated from one another and with a portion of the surface pruinose, and with a completely pruinose scutellum. *Toonglasa yushaniacola* also has very slender antennae, nonhooked antenniferous tubercles, bright yellow legs and a metathoracic scent gland auricle that is angled anteriorly.

While the micropterous condition of this specimen probably affects the shape of the pronotum and may result in the confluent shining pronotal calli the large conspicuous relatively thick antennae, shape of the metathoracic scent gland auricle, body coloration all indicate that we are dealing with a undescribed taxa. Males of this unusual species will be very desirable to discover if they have sexually dimorphic features so prominent on many male members of this genus.

Toonglasa barrerae Slater & Brailovsky

Toonglasa barrerae Slater & Brailovsky, 1983:530–531.

Distribution: Known only from Mexico.

Type locality: Mexico, Guerrero, 5 km from Chilpancingo (Chilpancingo-Omilteme road).

Additional distributional data: 27 males, 23 females. JALISCO: Autlan (km 172 Guadalajara-Barra de Navidad road). MICHOACAN: km 20 Aguillilla-Dos Aguas road; km 17. Coalcoman-La Nieve road; km 93 Uruapan-Playa Azul road; Charando. COLIMA: km 16. Atenquique-Manzanillo road. NAYARIT: km 47 Tepic-Puerto Vallarta road. GUERRERO: km 67 Taxco-Alpuyeca road. OAXACA: 20 km Southeast from Dominguillo; Cuicatlan. Biology: This species was originally taken on leaves of *Arthrostylidium longifolium* (Fourn.) E. G. Camus. We now are able to

report it on the leaves of *Bambusa aculeata* (Rupr.) Hitchcock. Both of these are slender species of bamboo.

Toonglasia forficuloides Distant

Toonglasia forficuloides Distant, 1983:392. Supp. 392.

Distribution: Known only from Mexico.

Type locality: Omilteme, Guerrero, Mexico. Reported by Slater and Brailovsky (1983) from localities in Guerrero.

Additional distributional data: 78 males, 73 females. JALISCO: Autlan; Plan de Barrancas; La Venta de Nochistlan. GUERRERO: Teloloapan; Acahuizotla; Juxtla-huaca; km 60 Ciudad Altamirano-Zihuatenejo road; km 67 Taxco-Alpuyeca road; Iguala (Estacion de Microondas Tiuribe); Acatempan; Chapa. MICHOACAN: km 35 Tepalcatepec-Coalcoman road; km 17 Coalcoman-La Nieve road; Tzitzio; km 93 Uruapan-Playa Azul road; km 48 La Guardia-Caracuaro. COLIMA: km 16 Atenquique-Manzanillo road.

Toonglasia tumorosis Slater & Wilcox

Extarademus tumorosis Slater & Wilcox, 1966:67.

Distribution: Originally described from Panama and Guatemala and subsequently reported from Guerrero and Oaxaca by Slater and Brailovsky (1983).

Type locality: Panama, Caldera 1,200 ft.

Additional distributional data: 74 males, 47 females. GUERRERO: Atoyac. VERACRUZ: Ocotil-Texisapa road. OAXACA: km 219 Puerto Angel-Oaxaca road; 4 km S. from Tlaltepec; Amuzgos; km 17 Sayula-Ciudad Aleman road. CHIAPAS: km 42 Motozintla-Comitan road; Jaltenango (Finca Prusia); km 31 Revolucion Mexicana-Concordia road; km 224 Tuxtla Gutierrez-Ciudad Cuauhtemoc road; km 167 Arriaga-Tapachula road; km 235 Comitan-Ciudad Cuauhtemoc road.

Biology: Slater and Brailovsky (1983) noted the habitat in Guerrero but were unable to establish the host plant. We are now able to report it breeding on the leaves of the slender bamboo *Chusquea longifolia* (Fourn.) McClure.

Toonglasia tylosis (Slater & Wilcox)

Extarademus tylosis Slater & Wilcox 1966:67-68.

Distribution: Known only from Mexico.

Type locality: Mexico: Tamazunchale (intercept. Laredo, Texas).

Additional distributional data: 28 males, 31 females. PUEBLA: Villa Avila Camacho. VERACRUZ: Papantla; Los Tuxtlas; Tlapacoyan.

Biology: Collected on the leaves of the wide and spinose bamboo, *Bambusa guadua* H. & B.

Toonglasia munda (Slater & Wilcox)

Extarademus mundus Slater & Wilcox 1966:65-67.

Distribution: Known only from Mexico.

Type locality: Mexico, 17 mi S. Loma Bonita, Oaxaca.

This species is apparently more variable in size and coloration than has previously been realized. The Boca Lacantum (Chiapas) series listed below has one male that agrees closely with the holotype in being robust with a somewhat swollen black anterior pronotal lobe that contrasts with the yellow posterior lobe. Both the clavus and corium are bright yellow with suffused brown stripes along the rows of punctures and along the apical corial margin. The membrane of the front wing is completely dark brown. The other four males are smaller, relatively slender and parallel sided. The posterior pronotal lobe is dark red, becoming black mesally on two of the specimens. All of these males have dull yellowish brown hemelytra without distinctly darker stripes and in all of these specimens the membrane of the forewing is pale, almost hyaline.

Slater and Brailovsky (1983) noted the strong sexual dimorphism in *munda*. This is true of the Chiapas series of five females. All agree with the four males discussed above in being slender and elongate and in having the posterior pronotal lobe dark red to black, rather than yellow. One female has the hemelytra pale as in the males above, but the other four have a relatively pale clavus and corium with distinct dark stripes along the rows of punctures and with the membrane of the forewing dark.

Three days after the Chiapas series was taken Messrs. Barrera and Garcia collected six specimens of *Toonglasa* in Oaxaca (km 17 Sayula-Ciudad Aleman road) on *Chusquea longifolia*. Three of these males are indistinguishable from *munda* morphologically but are very small with almost uniformly pale hemelytra. Two have the pronotum black except for the shining transverse bar across the humeral area, the third has the posterior pronotal lobe dark red as in most of the Chiapas series. The remaining three specimens (a male and 2 females) are specimens of *prunimunda*.

Despite the surprising variability present, all of these specimens have the same pruinosity pattern, no obvious genitalic differences and the same type of hind leg development and sexual dimorphism. We conclude that for the present they must be considered to represent a single variable species.

Additional distributional data: 123 males, 109 females. VERACRUZ: Ocotatl-Texisapa road; Minatitlan-Coatzacoalcos road; Coatzacoalcos. SAN LUIS POTOSI: Chapulhuacan-Tamazunchale road. TABASCO: San Manuel. OAXACA: Pochutla-Piedra Lumbre road; km 3 Pochutla-Oaxaca road; Tuxtepec-Arroyo Choapan road; Chacalapa; km 214 Puerto Angel-Oaxaca road; km 17 Sayula-Ciudad Aleman road. CHIAPAS: Boca Lacantum (Rio Usumacinta); Ocosingo-Chajul road (Reserva Montes Azules).

Biology: Slater and Brailovsky (1983) reported a single male on *Bambusa aculeata* (Rupr.) Hitchcock. However the long series above was taken on the leaves of two slender bamboos, *Olmea recta* Soderstrom and *Chusquea longifolia* (Fourn.) McClure.

Toonglasa thackstonae Slater & Brailovsky

Toonglasa thackstonae Slater & Brailovsky 1983:531-532.

Distribution: Known only from Mexico.

Type locality: Mexico, Guerrero, 11 km from Chilpancingo (Chilpancingo = Chichihualco road).

Additional distributional data: 187 males, 167 females. JALISCO: 17 km SW from Autlan; Jocotepec. GUERRERO: Teloloapan; Iguala (Estacion de Microondas Tiu-

ribe); km 67 Taxco-Alpuyeca road; km 50 Coyuca de Catalan-Zihuatanejo road; Chapa. MICHOACAN: Charando; km 35 Tepalcatepec-Coalcoman road; km 96 Maravatio-Morelia road. OAXACA: 10 km N. of Candelaria Loxicha; Cuicatlan. NAYARIT: km 47 Tepic-Puerto Vallarta road; Puerto de los Mazos.

Biology: Taken in large numbers on the leaves of two slender bamboos: *Guadua spinosae* (SW) McClure and *Bambusa aculeata* (Rupr.) Hitchcock.

Toonglasa umbrata (Distant)

Ischnodemus umbratus Distant, 1893:391.

Ischnodemus cahaboenensis Distant, 1893:391.

Ischnodemus macer Van Duzee, 1921:114.

Distribution: The most widely distributed member of the genus. It occurs from the central United States (Iowa and Nebraska) south through Mexico and Central America at least into Brazil. In Mexico it has been previously reported by Slater and Brailovsky (1983) from Nayarit, Jalisco, Veracruz, Estado de Mexico, Oaxaca, Tabasco and Quintana Roo.

Type locality: Guatemala.

Additional distributional data: MEXICO—109 males, 87 females. CHIHUAHUA: km 23 El Sueco-Silla Ahumada road. SONORA: km 55 Guaymas-Ciudad Obregon road. DURANGO: km 35 Durango-Mazatlan road. TAMAULIPAS: km 22 Soto La Marina-La Pesca road. VERACRUZ: Conejos; Los Tuxtlas; km 84 Ciudad Aleman-Acayucan road; Ocotil-Texisapa road. JALISCO: La Ventana de Nochistlan; Ocotlan. GUERRERO: Acahuizotla. TABASCO: San Manuel. CAMPECHE: km 54 Campeche-Merida road; Bolanchen de Rojas; Castamay; El Tormento; Santa Cruz. MICHOACAN: Aguililla. OAXACA: Tlotepec; km 65 Tuxtepex-Oaxaca road; Pluma Hidalgo; Matatlan (Estacion de Microondas Nueve Puentes). CHIAPAS: km 20 Tapachula-Puerto Madero road; km 167 Arriaga Tapachula road; km 27 Morelos-Malpaso road; km 50 Palenque-Ocosingo road. YUCATAN: Kabah.

Biology: This is the only species of *Toonglasa* that is known thus far to breed upon grasses other than bamboos. Slater (1976) and Slater and Brailovsky (1983) report breeding upon *Andropogon glomeratus* (Walt.), *Bothriochloa intermedia* (R. Br.) A. Camus and *Hyparrhenia rufa* (Nees) Stapf.

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